

CPC**COOPERATIVE PATENT CLASSIFICATION****F03D****WIND MOTORS****NOTE**

In this subclass, the following words are used with the meanings indicated:

- "Wind motor" means a mechanism for converting the energy of natural wind into useful mechanical power, and the transmission of such power to its point of use;
- "Rotor" means the wind-engaging parts of the wind motor and the rotary member carrying them;
- "Rotations axis" means the axis of rotation of the rotor.

- F03D 1/00** **Wind motors with rotation axis substantially in wind direction** (controlling [F03D 7/00](#))
- F03D 1/001** . { Assembly thereof (fixing wind engaging part to rotor [F03D 1/0658](#)); Erecting methods; Equipments therefor (foundations [F03D 11/045](#))}
- F03D 1/003** . { Maintenance or repair; Equipment therefor}
- F03D 1/005** . { Transport; Equipments therefor}
- F03D 1/006** . { Commisioning}
- F03D 1/008** .. { Balancing static or dynamic imbalances}
- F03D 1/02** . having a plurality of rotors
- F03D 1/025** .. {coaxially arranged}
- F03D 1/04** . having stationary wind-guiding means, e.g. with shrouds or channels ([F03D 1/02](#) takes precedence)
- F03D 1/06** . Rotors
- F03D 1/0608** .. { characterised by their form}
- F03D 1/0616** ... {using the Magnus effect}
- F03D 1/0625** ... { of the whole rotor, i.e. form features of the rotor unit}
- F03D 1/0633** ... { of the blades}
- F03D 1/0641** { of the section profile of the blades}
- F03D 1/065** .. { characterised by their construction, i.e. structural design details ([F03D 1/001](#) takes preference)}
- F03D 1/0658** ... {Fixing wind-engaging parts to rotor}
- F03D 1/0666** ... { of the whole rotor}
- F03D 1/0675** ... { of the blades}
- F03D 1/0683** { of the section profile of the blades}

- F03D 1/0691 . . . { of the hub}
- F03D 3/00** **Wind motors with rotation axis substantially at right-angles to wind direction**
(controlling [F03D 7/00](#))
- F03D 3/002 . {axis horizontal}
- F03D 3/005 . {axis vertical}
- F03D 3/007 .. {using the Magnus effect}
- F03D 3/02 . having a plurality of rotors
- F03D 3/04 . having stationary wind-guiding means {or means stationary only with respect to the current wind direction}, e.g. with shrouds or channels ([F03D 3/02](#) takes precedence)
- F03D 3/0409 .. {having stationary guiding vanes surrounding the rotor ([F03D 3/0427](#) takes precedence)}
- F03D 3/0418 . . . {the vanes being adjustable}
- F03D 3/0427 .. {with augmenting action, i.e. the guiding means intercepting an area greater than the effective rotor area ([F03D 3/0463](#), [F03D 3/049](#) take precedence)}
- F03D 3/0436 .. {having shield means on one side of the rotor}
- F03D 3/0445 . . . {fixed with respect to rotor, orientable together}
- F03D 3/0454 {and only with concentrating action, i.e. only increasing the airflow speed into the rotor ([F03D 3/0463](#) takes precedence)}
- F03D 3/0463 {with augmenting action, i.e. the shield means intercepting an area greater than the effective rotor area}
- F03D 3/0472 . . . {orientable with respect to the rotor}
- F03D 3/0481 {and only with concentrating action, i.e. only increasing the airflow speed into the rotor ([F03D 3/049](#) takes precedence)}
- F03D 3/049 {with augmenting action, i.e. the shield means intercepting an area greater than the effective rotor area}
- F03D 3/06 . Rotor
- F03D 3/061 .. {Form}
- F03D 3/062 .. {Construction}
- F03D 3/064 . . . {Fixing wind engaging parts to rest of rotor}
- F03D 3/065 . . . {the wind engaging parts having no movement relative to the rotor during its rotation}
- F03D 3/067 . . . {the wind engaging parts having a cyclic movement relative to the rotor during its rotation}
- F03D 3/068 {the cyclic relative movement being coupled to the movement of rotation; Controlling same, e.g. according to wind direction or force}
- F03D 5/00** **Other wind motors** (controlling [F03D 7/00](#))
- F03D 5/005 . {Wind motors having a single vane which axis generate a conus or like surface}
- F03D 5/02 . the wind-engaging parts being attached to endless chains or the like

F03D 5/04 . the wind-engaging parts being attached to carriages running on tracks or the like

F03D 5/06 . the wind-engaging parts swinging to-and-fro and not rotating

F03D 7/00 Controlling wind motors

- F03D 7/02 . the wind motors having rotation axis substantially in wind direction
- F03D 7/0204 .. { for orientation in relation to wind direction}
- F03D 7/0208 ... { Orientating out of wind}
- F03D 7/0212 { the rotating axis remaining horizontal}
- F03D 7/0216 { the rotating axis changing to vertical position}
- F03D 7/022 .. { Adjusting aerodynamic properties of the blades}
- F03D 7/0224 ... { Adjusting blade pitch}
- F03D 7/0228 { of the blade tips only}
- F03D 7/0232 ... { with flaps or slats (with aerodynamic drag devices on the blades for braking [F03D 7/0252](#))}
- F03D 7/0236 ... { by changing the active surface of the wind engaging parts, e.g. reefing, telescoping, furling or coning}
- F03D 7/024 ... { of individual blades}
- F03D 7/0244 .. { for braking}
- F03D 7/0248 ... { by mechanical means acting on the power train}
- F03D 7/0252 ... { with aerodynamic drag devices on the blades}
- F03D 7/0256 .. { Stall control (adjusting the blades in stall position [F03D 7/0224](#))}
- F03D 7/026 .. { for starting-up}
- F03D 7/0264 .. { for stopping or in emergency situation (orientating out of wind [F03D 7/0208](#))}
- F03D 7/0268 ... { Parking or storm protection}
- F03D 7/0272 .. { by measures acting on the electrical generator (controlling electric generator per se [H02P](#))}
- F03D 7/0276 .. { Controlling rotor speed, e.g. variable speed}
- F03D 7/028 .. { Controlling motor output power}
- F03D 7/0284 ... { in relation to the state of the electric grid (supplying or distributing electric power [H02J](#))}
- F03D 7/0288 ... { to prevent instantaneous damage to any part of the motor}
- F03D 7/0292 ... { to increase fatigue life}
- F03D 7/0296 .. { to prevent, counteract or reduce vibration or noise}
- F03D 7/04 .. Automatic control; Regulation
- F03D 7/041 ... { by means of a mechanical governor}
- F03D 7/042 ... { by means of an electrical or electronic controller}
- F03D 7/043 { characterised by the type of control logic}
- F03D 7/044 { with PID control}
- F03D 7/045 { with model-based controls}
- F03D 7/046 { with learning or adaptive control, e.g. self-tuning, fuzzy logic or neural network}

- F03D 7/047 { characterised by the controller architecture, e.g. multiple processors or data communications}
- F03D 7/048 { Controlling wind farms}
- F03D 7/06 . the wind motors having rotation axis substantially at right angle to wind direction
{(F03D 3/068 takes precedence)}

- F03D 9/00** **Adaptations of wind motors for special use; Combinations of wind motors with apparatus driven thereby (aspects predominantly concerning driven apparatus)**

- F03D 9/001 . {the apparatus being a pump or compressor; Producing under- or overpressure
(F03D 9/028 takes precedence)}
- F03D 9/002 . { the apparatus being an electrical generator (F03D 9/021 takes precedence; details of electrical generators specifically adapted to wind turbines H02K 7/183)}
- F03D 9/003 . . {connected to an electrical general supply grid; Arrangements therefor}
- F03D 9/005 . . . {the wind motor being part of a wind farm}
- F03D 9/006 . {Adaptations for producing heat, e.g. in heat pump systems}
- F03D 9/007 . {the wind motor being combined with means for converting solar radiation into useful energy}
- F03D 9/008 . {the wind motor being combined with water energy converters, e.g. a water turbine}

- F03D 9/02 . the apparatus storing energy
- F03D 9/021 . . {in an electrical accumulator}
- F03D 9/023 . . {storing gravitational potential energy}
- F03D 9/025 . . . {using a liquid, e.g. water}
- F03D 9/026 . . . {using weights}
- F03D 9/028 . . {in a pressurised fluid accumulator}

- F03D 11/00** **Details, component parts, or accessories not provided for in, or of interest apart from, the preceding groups**

- F03D 11/0008 . {Bearing or lubricating arrangements (lubricating of machines in general F01M; bearings per se F16C)}
- F03D 11/0016 . { Cleaning}
- F03D 11/0025 . { Ice detection; Deicing means}
- F03D 11/0033 . { Lightning protection}
- F03D 11/0041 . { Warning systems for air traffic}
- F03D 11/005 . { Arrangement of components within nacelle or tower}
- F03D 11/0058 . . { of electrical components}
- F03D 11/0066 . . . { Cabling}

- F03D 11/0075 . . { of mechanical components}
- F03D 11/0083 . { Measures to avoid shadow flicker on surroundings}
- F03D 11/0091 . { Monitoring; Diagnostics; Testing; Equipments therefor}
- F03D 11/02 . Transmission of power, e.g. using hollow exhausting blades {gearings per se [F16H](#)}
- F03D 11/022 . . {Using hollow exhausting blades}
- F03D 11/024 . . {Transmission in alternative movement}
- F03D 11/026 . . . {Changing or adjusting stroke}
- F03D 11/028 . . { without gearing, i.e. gearless drive}
- F03D 11/04 . Mounting structures
- F03D 11/045 . . { Foundations specifically suited for wind motors}